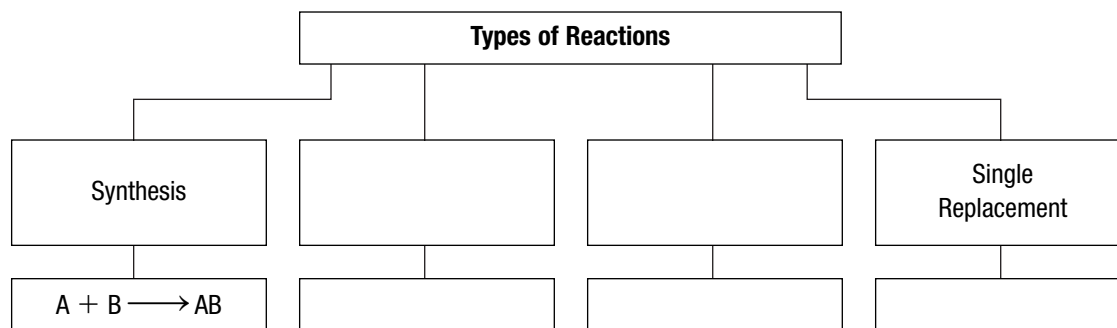


## Chapter 7 Chemical Reactions

**Section 7.2 Types of Reactions****(pages 199–205)***This section discusses how chemical reactions are classified into different types.***Reading Strategy (page 199)**

**Previewing** Skim the section and begin a concept map like the one below that identifies types of reactions with a general form.

As you read, add the general form of each type of reaction. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

**Classifying Reactions (pages 199–204)**

1. Name five general types of chemical reactions. \_\_\_\_\_
2. Circle the letter of each equation that represents a synthesis reaction.
  - a.  $2\text{Na} + \text{Cl}_2 \longrightarrow 2\text{NaCl}$
  - b.  $2\text{NaCl} \longrightarrow 2\text{Na} + \text{Cl}_2$
  - c.  $2\text{H}_2\text{O} \longrightarrow 2\text{H}_2 + \text{O}_2$
  - d.  $2\text{H}_2 + \text{O}_2 \longrightarrow 2\text{H}_2\text{O}$
3. Is the following sentence true or false? A decomposition reaction is the opposite of a synthesis reaction. \_\_\_\_\_
4. Write the equation for the decomposition of calcium carbonate into calcium oxide and carbon dioxide. \_\_\_\_\_
5. Circle the letter of the correct answer. Copper reacts with silver nitrate in a single-replacement reaction. What are the products of this reaction?
  - a. copper(II) nitride and silver oxide
  - b. copper(II) nitrate and silver
  - c. copper(II) oxide and silver nitrate
  - d. copper, nitrogen, and silver oxide

**Chapter 7 Chemical Reactions**

6. What is a double-replacement reaction? \_\_\_\_\_  
\_\_\_\_\_
7. Complete the chart by filling in the general forms of the reactions shown.

General Forms	
Single-Replacement Reaction	Double-Replacement Reaction

8. Lead(II) nitrate reacts with potassium iodide to form lead(II) iodide and potassium nitrate. Write the balanced equation for this double-replacement reaction. \_\_\_\_\_
9. Circle the letter of the correct answer. Calcium carbonate,  $\text{CaCO}_3$ , reacts with hydrochloric acid,  $\text{HCl}$ , in a double-replacement reaction. What are the products of this reaction?
- calcium chloride,  $\text{CaCl}_2$ , and carbonic acid,  $\text{H}_2\text{CO}_3$
  - calcium hydride,  $\text{CaH}_2$ , chlorine,  $\text{Cl}_2$ , and carbon dioxide,  $\text{CO}_2$
  - calcium hydrogen carbonate,  $\text{Ca}(\text{HCO}_3)_2$ , and chlorine,  $\text{Cl}_2$
  - calcium perchlorate,  $\text{Ca}(\text{ClO}_4)_2$ , and methane,  $\text{CH}_4$
10. Is the following sentence true or false? A combustion reaction is a reaction in which a substance reacts with carbon dioxide, often producing heat and light. \_\_\_\_\_
11. Methane,  $\text{CH}_4$ , burns in oxygen to form carbon dioxide and water. Write the balanced equation for this reaction. \_\_\_\_\_
12. Is the following sentence true or false? The reaction that forms water can be classified as either a synthesis reaction or a combustion reaction. \_\_\_\_\_

**Reactions as Electron Transfers (pages 204–205)**

13. What is an oxidation-reduction reaction? \_\_\_\_\_  
\_\_\_\_\_
14. Calcium reacts with oxygen to form calcium oxide. Which reactant is oxidized in this reaction? \_\_\_\_\_
15. Is the following sentence true or false? When calcium reacts with oxygen, each calcium atom gains two electrons and becomes a calcium ion with a charge of 2–. \_\_\_\_\_
16. Is the following sentence true or false? Oxygen must be present in order for an oxidation-reduction reaction to take place.  
\_\_\_\_\_
17. The process in which an element gains electrons during a chemical reaction is called \_\_\_\_\_.